AU9852034

(12) PATENT ABRIDGMENT (11) Document No. AU-B-52034/98
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 691465

(Australian Petty Patent)

(54) Title
A DEVICE FOR PIVOTALLY COUPLING MEMBERS

International Patent Classification(s)
(51)[6] **E04G 007/16** **E04H 017/14** **F16B 007/00**

(21) Application No. : **52034/98** (22) Application Date : **13.01.98**

(30) Priority Data

(31) Number	(32) Date	(33) Country
PO4594	**14.01.97**	**AU AUSTRALIA**

(43) Publication Date : **14.05.98**

(45) Publication Date of Granted Application : **14 05.98**

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(56) Prior Art Documents
AU 14297/33
EP 590806
US 5593143

(57) Claim

1. A device for pivotally coupling members, the device having a pivot assembly for engagement with an exterior of a first of the members, a connection assembly for engaging a second of the members and a linkage adapted to be arranged about the first member, the linkage coupling the connection assembly to the pivot assembly so as to provide for pivotal movement of the second member relative to the first member.

Regulation 3.2

AUSTRALIA

PATENTS ACT 1990

COMPLETE SPECIFICATION

FOR A PETTY PATENT
(ORIGINAL)

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INVENTION TITLE: "A device for pivotally coupling members"

Details of Associated Provisional Application(s): No(s):

PO4594 filed 14 January 1997

The following statement is a full description of this invention, including the best method of performing it known to me/us:

A DEVICE FOR PIVOTALLY COUPLING MEMBERS

The following invention relates to a device for pivotally coupling members.

In accordance with the present invention there is provided a device for coupling a first member to a second and third member, having a pivot assembly for engagement with the first member, two connection assemblies for engaging the second and third members, and a linkage adapted to be arranged about the first member, the linkage coupling the connection assemblies to the pivot assembly so as to provide for pivotal movement of the second and third members relative to the first member.

Preferably, the connection assemblies are arranged to either side of the pivot assembly about a substantially common axis such that the second and third members, when engaged by the connection assemblies, extend from the device in a substantially co-linear manner.

The pivot assembly preferably comprises a clamp means which engages the first member and coupling pins extending from remote sides of the clamp means, the pins being coupled to the linkage to allow rotation of the linkage about the clamp means.

Alternatively, the pivot assembly comprises a clamp means which engages the first member and has an integrally formed protrusion extending from either side thereof for receipt in a corresponding recess formed in the linkage, whereby to allow rotation of the linkage about the clamp means.

Preferably, the connection assemblies include opposed elements movable relative to each other which preferably engage the second and third members by clamping action. Preferably, the linkage comprises two links which are arranged on either side of the first member, the links being coupled to the connection assemblies such that the device is formed of two component portions, each portion comprising one of the links and one of the opposed elements of each connection assembly, the component portions having a fastening means

coupled therebetween, intermediate the connection assemblies for clamping the two portions against the members. Preferably, the clamp means is formed of two opposed parts and each component portion further comprises one of the two parts pivotally coupled to the link thereof.

Preferably, the fastening means has two bolts interconnecting the component portions at spaced locations along the extent of the portions so as to be arranged to either side of the first member when the device is engaged therewith, the bolts having a fastener threadably mounted thereto whereby tensioning of the fastener effects clamping together of the connection assemblies and causes the clamp means of the pivot assembly to securely engage the first member.

The above described device is preferably utilised in construction of a fence, particularly in the case where fence rails need to be angled relative to a fence post. Accordingly, another aspect of the present invention provides a fence including a post, two rails and a device as above described, wherein the pivot assembly engages the post, and the connection assemblies engage the rails.

The present invention need not be limited to coupling three members and the above described device may be modified for coupling two members only, such as by provision of only one connection assembly. Accordingly, in another aspect there is provided a device for pivotally coupling members, the device having a pivot assembly for engagement with an exterior of a first of the members, a connection assembly for engaging a second of the members and a linkage adapted to be arranged about the first member, the linkage coupling the connection assembly to the pivot assembly so as to provide for pivotal movement of the second member relative to the first member.

The invention is further described, by way of non-limiting example only, with reference to the accompanying drawings, in which :

Figure 1 is a perspective view of a device constructed in accordance with the invention;

Figure 2 is a perspective view of a portion of a fence constructed in accordance with another aspect of the invention;

Figure 3 is a perspective view of a modified device; and

Figure 4 is a perspective view of a device constructed in accordance with another aspect of the invention.

Device 1 comprises a linkage 2, two connection assemblies 3, 4 which have opposed elements 5, 6, and 7, 8, and a pivot assembly 10. The device 1 is formed in two component portions 11, 12, each portion comprising a link 13, 14 of the linkage 2 and one of the opposed elements of each connection assembly 3, 4. The pivot assembly 10 is formed of a clamp means 19 including two parts 17, 18 having coupling pins 20 extending therethrough. The pins 20 are coupled to the links 13, 14 to allow rotation of the linkage 2 about the clamp 19.

The connector 1 also includes fastening means 21 in the form of two bolts 22, 23 interconnecting the component portions 11, 12 at spaced locations along the extent of the portions. Each bolt 22, 23 has a fastener 24, such as a nut 25 threadably mounted thereto.

The above described device 1 is used to pivotally couple a first member 30, such as a fence post 31, relative to second and third members 32, 33, such as a fence rails 34, 35, as shown in Figure 2. To effect such coupling, the linkage 2 is placed about the post 31, such as by sliding the linkage over an end of the post 31, or by bolting together initially disconnected component portions 11, 12 about the post. Rails 33, 34 are inserted into connection assemblies 3, 4 and the fasteners on the bolts 22, 23 tensioned so that the opposed elements 5, 6 and 7, 8 move toward each other to clamp the rails in the connection assemblies

3, 4. The clamping action effected by the bolts 22. 23 and fasteners is also effective to simultaneously clamp the post 31 between the clamp 19, thereby engaging the pivot assembly with the post 31.

The device 1 is arranged such that clearance is provided between the links 13. 14 and the post 31 so as to allow the component portions 11, 12, and thereby the rails 34, 35, to pivot freely relative to the post 31, prior to being clamped to the post. Once the component portions 11, 12 are clamped together, the rails 34, 35 are fixed relative to the post 31.

The connection assemblies 3, 4 are arranged about a substantially common axis such that the rails 34, 35 extend from the device 1 in a substantially co-linear manner. This provides for alignment of the rails even when the fence is on an incline.

A modified device 40 to that described above is shown in Figure 3. The modified device 40 functions identically to the device 1 and is substantially similar in construction. with like parts being denoted with like reference numerals, the exception being that the pivot assembly 10 and the links 13. 14 are interconnected differently. In particular. the parts 17. 18 of the clamp means 19 and the coupling pins 20 are replaced with modified parts 41, 42 which each have an integrally formed protrusion 43, 44 extending therefrom. Each protrusion is received in a corresponding cup like recess 45, 46 formed in the links 13. 14 so as to allow rotation of the linkage about the protrusions. the protrusions 43. 44 may be initially 'hot glued' into the recesses 45, 46 for ease of installation and may also be designed for an interference fit so as to inhibit the parts 41. 42 falling out of the recesses during installation.

While the attachment device 1 shown in Figures 1 to 3 is suitable for coupling three members 30. 32, 33 together. a situation may arise where only two members need to be coupled together. In such a case. one of the connectors may be dispensed with. as illustrated in Figure 3.

The above described construction has been advanced merely by way of explanation, and many modifications and variations may be made thereto without departing from the spirit and scope of the invention as defined in the appended claims.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A device for pivotally coupling members, the device having a pivot assembly for engagement with an exterior of a first of the members, a connection assembly for engaging a second of the members and a linkage adapted to be arranged about the first member, the linkage coupling the connection assembly to the pivot assembly so as to provide for pivotal movement of the second member relative to the first member.

2. A device as claimed in claim 1, wherein the connection assembly comprises one of two connection assemblies for engaging the second and a third member respectively, the connection assemblies are arranged to either side of the pivot assembly about a substantially common axis such that the second and third members, when engaged by the connection assemblies, extend from the device in a substantially co-linear manner.

3. A device for coupling a first member to a second and third member as claimed in claim 2, wherein the connection assemblies include opposed elements movable relative to each other which engage the second member by clamping action.

DATED this 25th day of March, 1998

RMD PRESS CO. PTY LTD

By Their Patent Attorneys

DAVIES COLLISON CAVE

ABSTRACT

A device for coupling a first member to a second member, having a pivot assembly engageable with the first member and a connection assembly engageable with the second member. A linkage is adapted to be arranged about the first member, to couple the connection assembly to the pivot assembly so as to provide for pivotal movement of the second member relative to the first member.

520S4/98

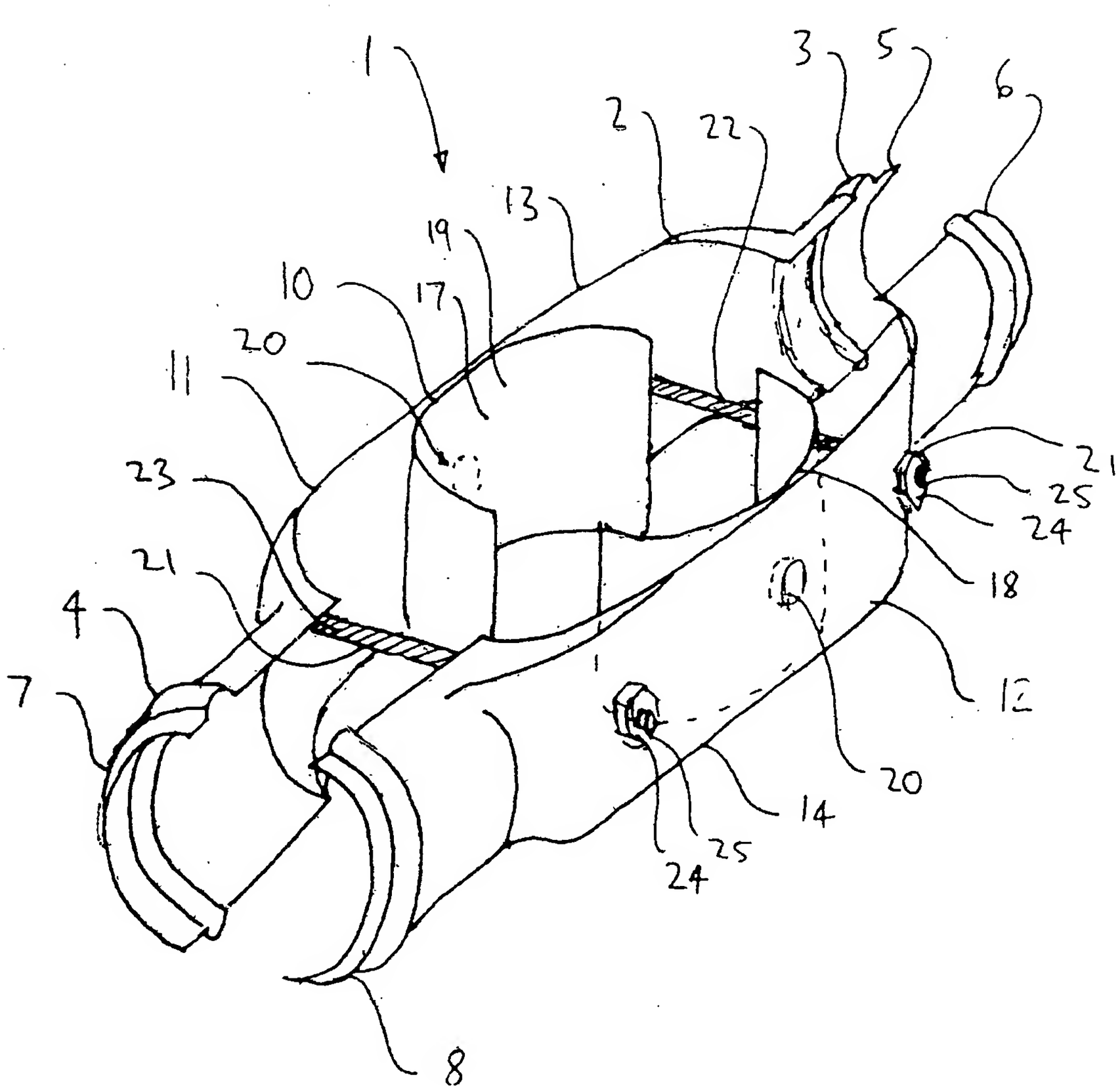

FIG 1

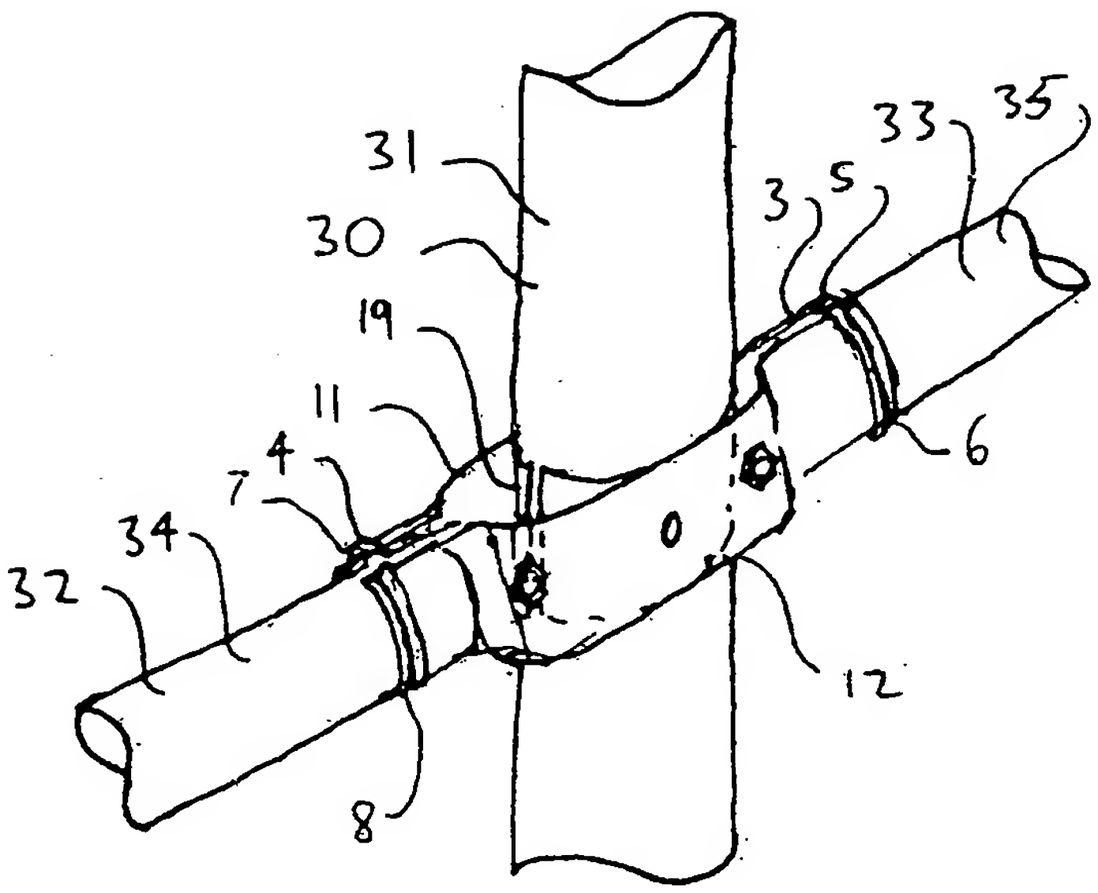

FIG 2

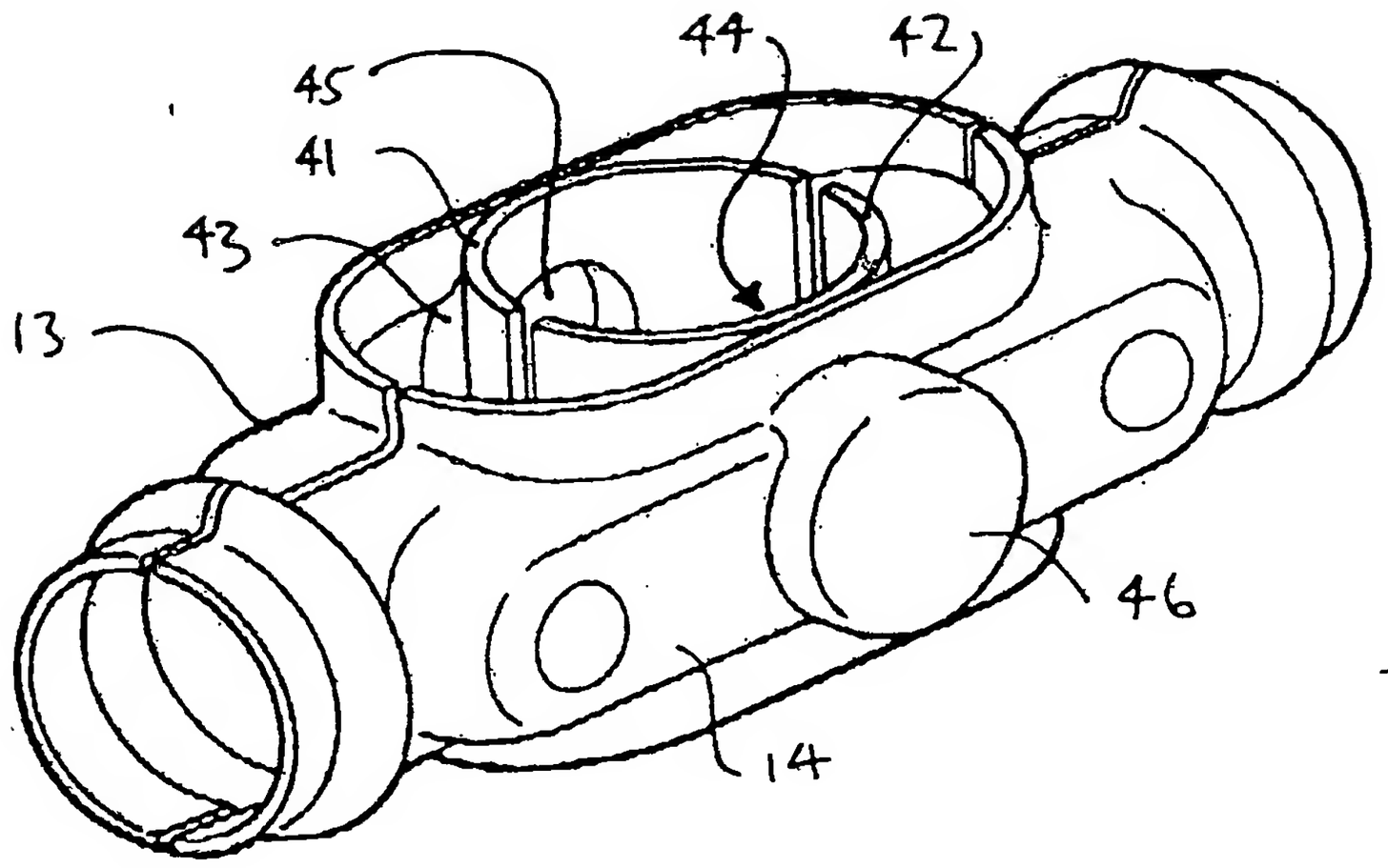

FIG 3

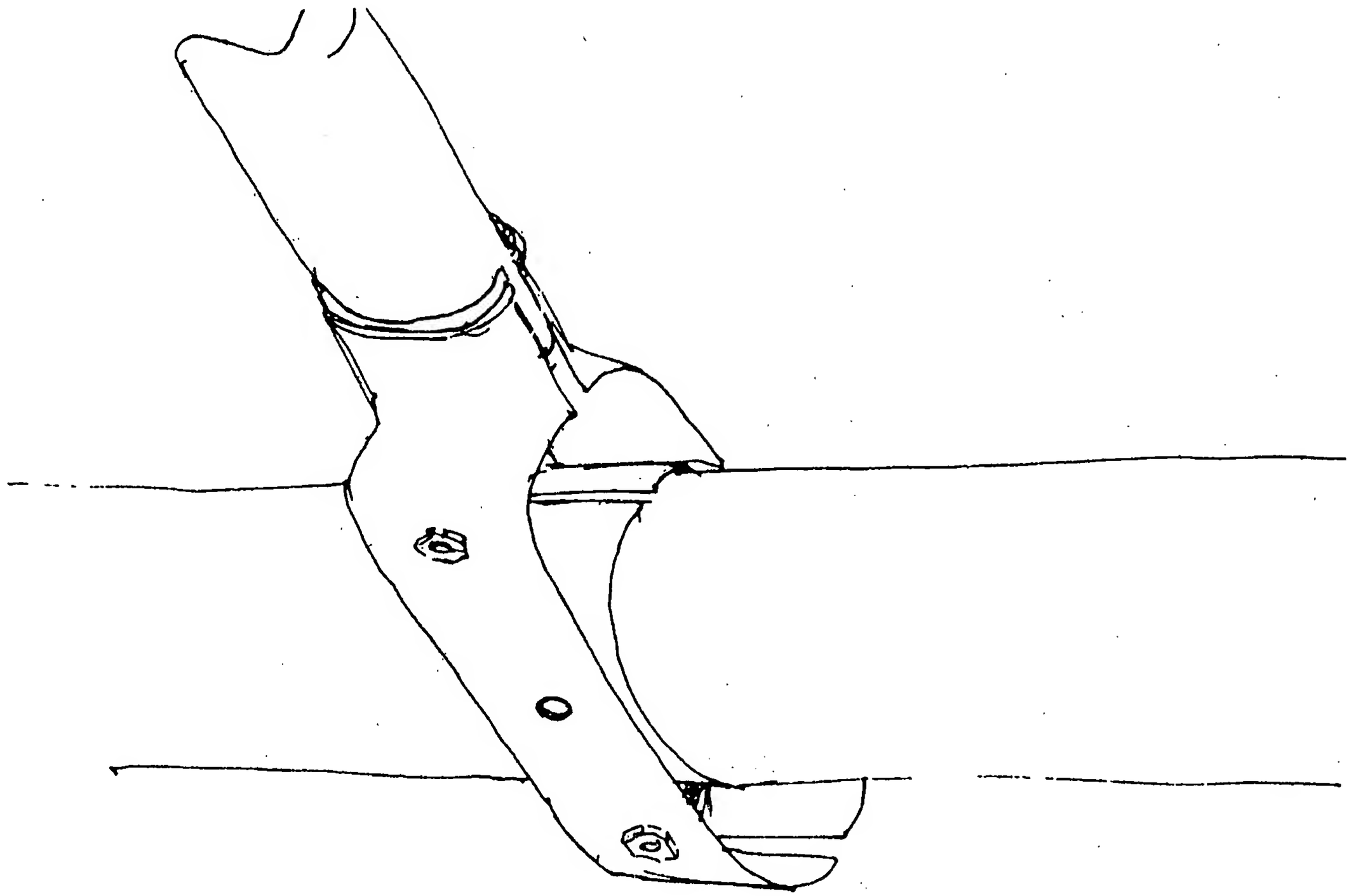

FIG 4